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Local energy is best for North America

by John Fernie

North America need not have an energy crisis. Although nationalistic concerns over energy security would override any concept of a common energy market, a continental energy policy makes economic and environmental sense, as John Fernie explains

During oil shortages in July 1979, potential US presidential candidates expressed the idea of an energy common market to lessen American dependence upon imported OPEC oil. The gist of their argument was that in exchange for financial and technological expertise, her two neighbours would supply the US with oil and gas; the Canadians, in turn, would supply Mexico with Candu nuclear technology to guarantee future power supplies in exchange for oil for East Canadian markets. The US plan has received lukewarm response from Mexico and Canada as the economic advantages of such a scheme would undoubtedly be undermined by political realities.

The US situation with regard to the importation of oil is urgent. Since the 'energy crisis' and President Nixon's abortive 'Project Independence', the US has become more rather than less dependent upon foreign oil. From 1973 to 1979, the oil quota system was scrapped and replaced by fees levied on imported oil. The net result was an increasing dependence on foreign oil. In 1972 - the last year of the quota system - the US imported 4,700,000 barrels a day, 29 per cent of the domestic demand. The upturn in the economy from 1975 to 1977 led to an increase in demand for oil and record imports were registered in 1977 at 8,800,000 barrels a day. Imports levelled off at 8,200,000 barrels a day until 1979 when Iranian production cuts forced US requirements down to 7,700,000 barrels a day - 43 per cent of domestic demand.

For the future, President Carter has committed the US to a quota system - a ceiling of 8,600,000 barrels a day. Meanwhile, south of the border, oil and gas have been discovered at rates that have made Mexico a major oil producer. Reserves are being constantly upgraded and in 1979 'proven' reserves were estimated at 40,000,000,000 barrels with an ultimate potential of 200,000,000,000 recoverable reserves. Production has increased from 900,000 barrels a day in 1976 to 1,500,000 barrels a day in 1979, with 400,000 barrels a day being exported to the US in 1979 to augment supplies from the Texas and Louisiana fields. US imports of Mexican oil are expected to increase by two to three times by the early-1980s; however, this will only make a minor contribution to US domestic oil consumption, which is currently 18,000,000 barrels a day.

Recent visits by President Carter and other diplomats from oil-thirsty Western countries reflect the hope that Mexican oil potential will be exploited quickly thus ensuring continuity of supplies in the event of any further disruption of supplies from the Middle East. The Mexican's inherent suspicion of foreign oil companies pre-dates expropriation in 1938, and because of her insistence on using domestic labour and technology where possible, the pace of development will be slow. In a country with a fast growing population, acute problems of rural and urban deprivation exist; the oil bonanza must therefore be carefully managed to ensure a better standard of living for all Mexicans.

Mexican oil will find its way to the US market for sound commercial reasons, but the US are likely to receive limited cooperation with their offer of technological assistance if the 'common market' proposal was implemented. Relations between the two countries have not been enhanced after Schlesinger, former US Energy Minister, cancelled plans to buy Mexican gas because of its high price when the pipeline from south-east Mexico to Texas was nearing completion. Unless the political climate improves, Mexico is more likely to seek help from Canada through the state oil company, Petro-Canada, rather than the privately owned US companies.

A net \$1,500,000,000 surplus on energy trading in 1978, with abundant reserves of coal, gas and 'unconventional' heavy oils yet to be tapped, gives Canada a promising energy future. Unfortunately,

Conflict in the Cairngorms

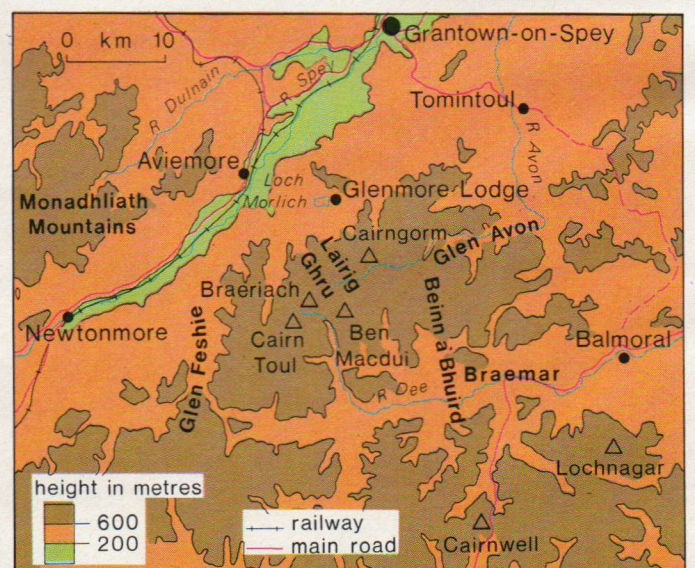
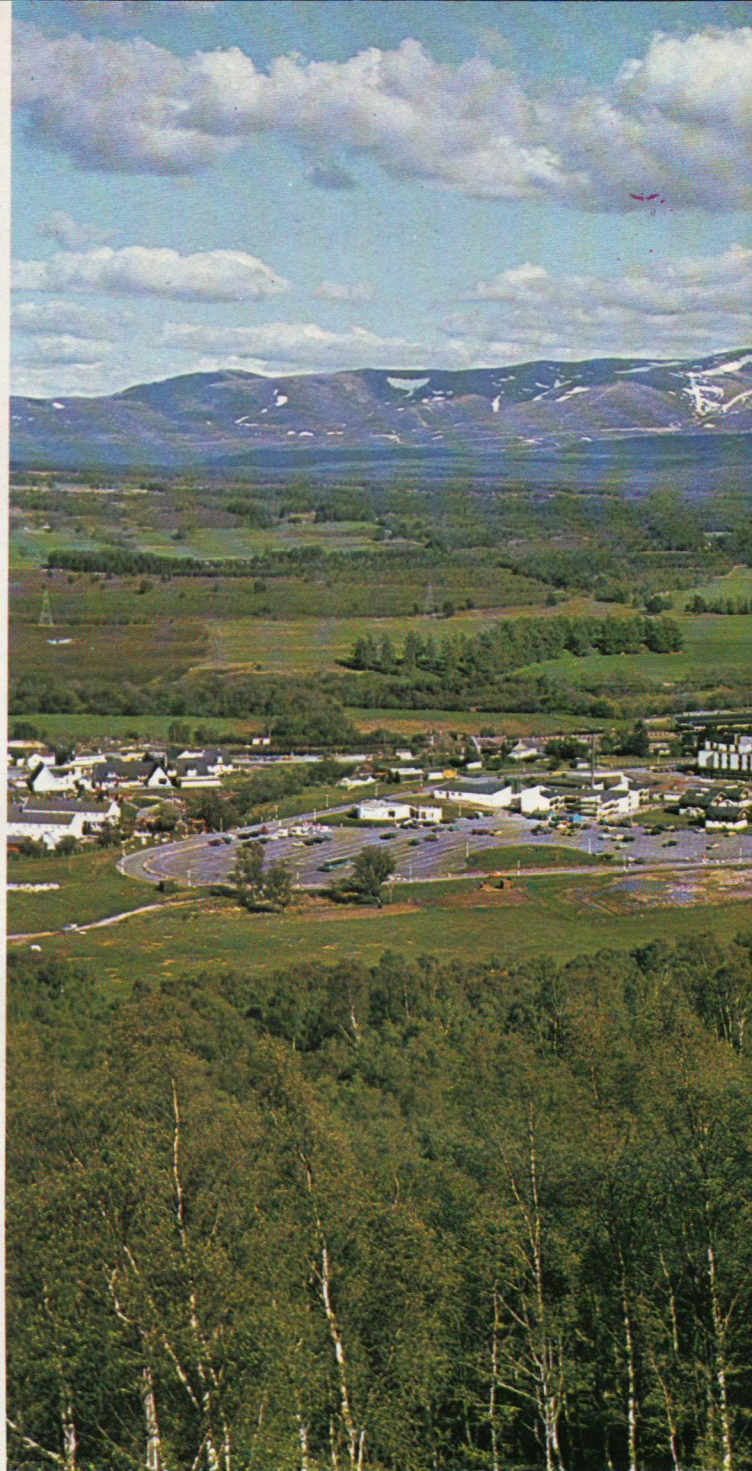
THE CAIRNGORMS ARE OF MAJOR SIGNIFICANCE for both tourism and conservation. The area is estimated to attract over 1,500,000 visitor-days a year, making it the most important centre for tourism in the Highlands, and the associated economic development has created jobs, both directly and indirectly, leading to a reversal of the trend of depopulation that has affected all landward areas of the Highlands for over a hundred years. Its significance for conservation is indicated by the fact that it was proposed as a National Park by the Ramsay Committee in 1945, designated as a National Park Direction Area in 1948, proposed as a Special Park in 1972 and identified as a National Scenic Area in 1979. In 1954, a substantial part, covering 260 square kilometres, was also designated as a National Nature Reserve, one of the largest in Great Britain. The environment is, moreover, a highly sensitive one, especially above the tree-line, where small pressures can have major and lasting effects.

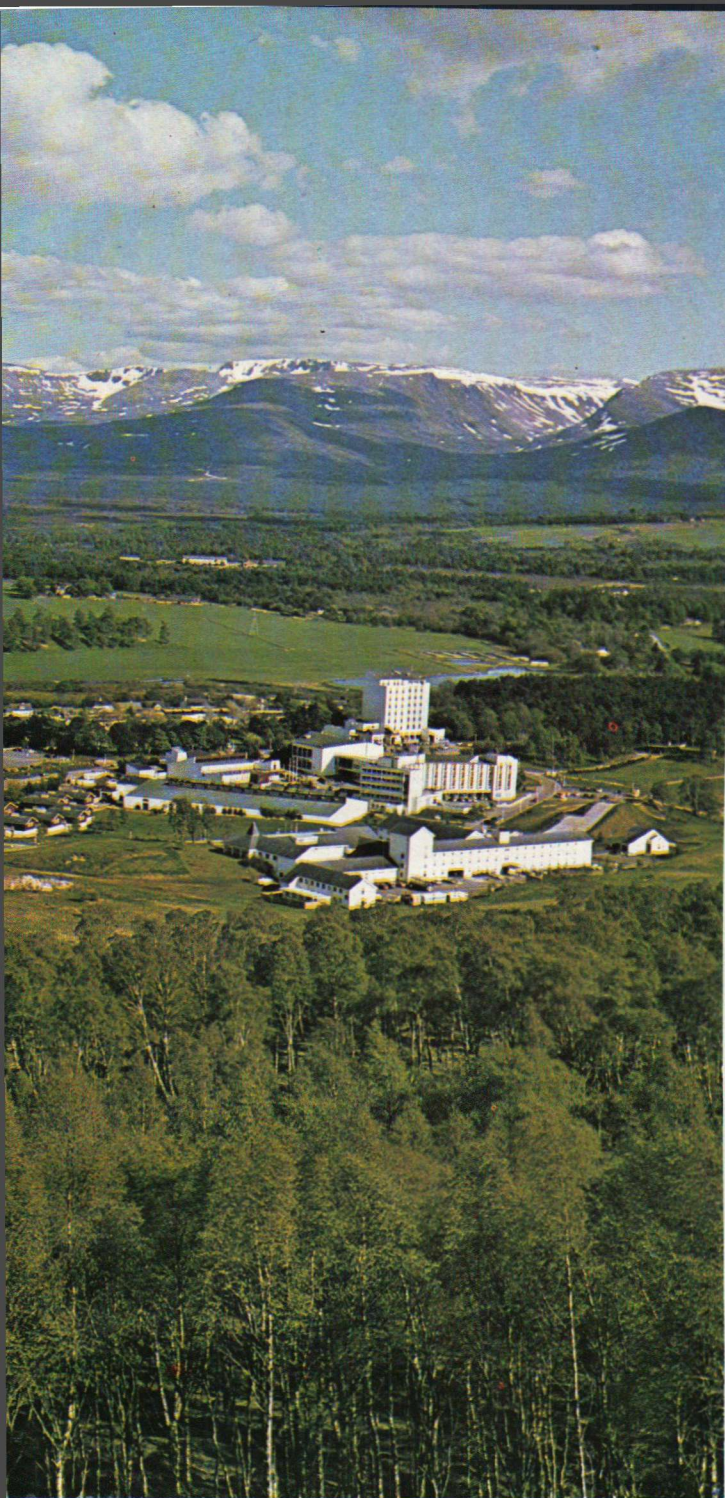
Price of progress

by J. T. Coppock

NOWHERE IN THE UK are the conflicts between tourism/recreation and conservation more clearly seen than in the Cairngorms. They are aggravated on the one hand by the national importance of a sensitive environment of high scenic quality and on the other by the political will to secure the revival of impoverished rural areas. Nowhere are the caricatures of rapacious developer and die-hard

protectionist more clearly perceived by opposing interests. The Spey Valley is the site of a unique tourist complex, the Aviemore Centre, and further developments are envisaged in that village. Cairngorm is also the largest centre for skiing in the country and a major expansion is under active consideration. It is not, therefore, surprising that conservationists, aware of past mistakes and the



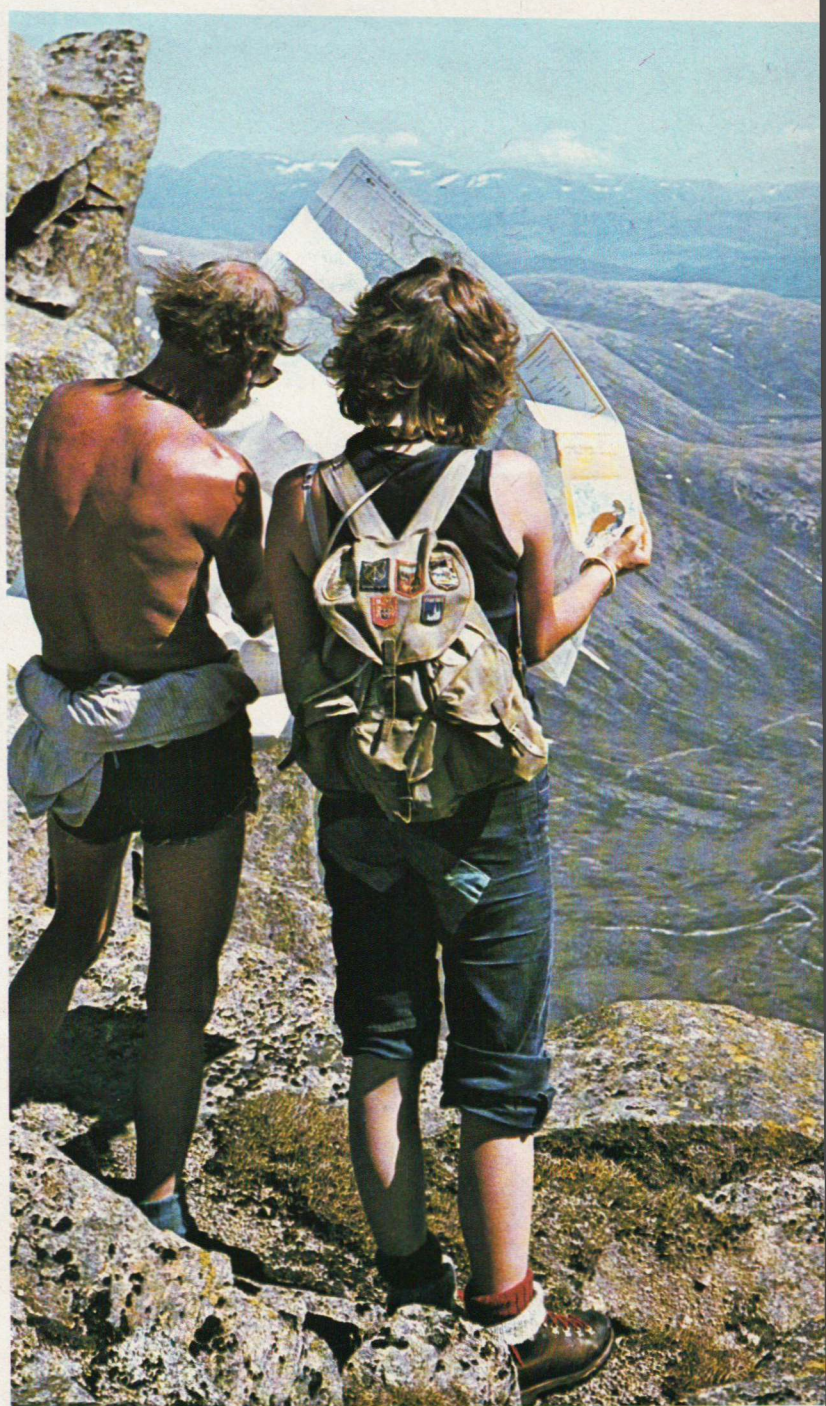


Hamlet of Aviemore was little more than a railway junction before the construction of the Aviemore Centre (above). Today it is the focus of the thriving Speyside tourist industry

Skiing on Cairngorm triggered the expansion of Speyside tourism. The sport was nurtured by enthusiasts who had learned to ski with the army at Glenmore during the war. In 1961 the first chairlift was built; now Cairngorm has uplift facilities (left) which rival those at continental resorts

Heavy snowfall turns the lawn of the Strathspey Hotel (top right) into a nursery slope for skiers. The hotel was part of the first phase of development at the Aviemore centre

Before winter-sport became popular the Cairngorms provided a venue for climbers and hill-walkers. Summer visitors still dominate tourist statistics; last year there were 306,000 tourists in the Spey valley area compared to a winter/spring peak of 125,000 in March. (Right) walkers on Braeriach







Attraction of the Cairngorms and Grampians lies partly in their height and remoteness. Access to the hills provided for skiers gives visitors a short-cut to one of Britain's last wilderness areas. Revival of interest in cross-country skiing has also increased winter penetration. (Above) lone ski-tourer on the lower hills

Downhill or *piste* skiing is dependent on, and concentrates around uphill transport. Initial development of Coire Cas (left) on the west side of Cairngorm involved the establishment of a good road to a large car park at 655 metres. Since 1961 two chairlifts and seven ski tows have been installed in Coire Cas. Their combined capacity is 6100 people per hour

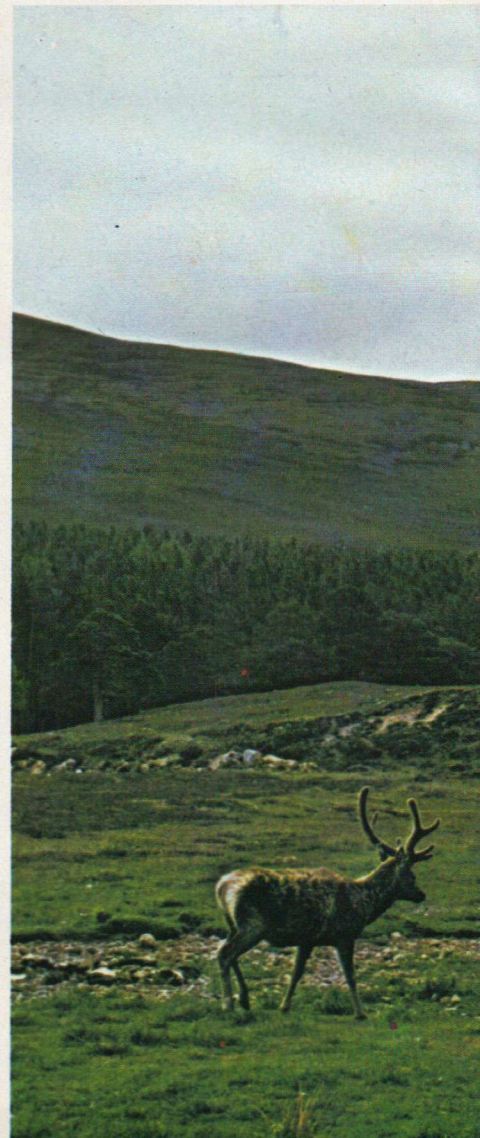
White Lady chairlift takes tourists to within 150 metres of the summit of Cairngorm. From there they have easy access to the Cairngorm plateau, a fragile arctic-alpine environment. (Right) a walker descends the well-trodden path from the summit to the upper chairlift station and Ptarmigan restaurant



Pressure on the original installations at Coire Cas is extreme and part of the response has been to expand into nearby areas. Neighbouring Coire na Ciste now has two chairlifts and three tows with a combined uplift of 4050 people per hour. Further expansion in the Cairngorms is being resisted by conservationists. (Left) skiers at the White Lady Shieling at Coire Cas

Conservation issues in the Cairngorms are complex. In skiing areas the impact of man on natural habitats is considerable. Disturbance by walkers is most probably preventing golden eagles from breeding successfully in the area but observations on the dotterel (right) and ptarmigan (far right) indicate that their numbers are not decreasing

The red deer, largest mammal of the Cairngorms, has had a profound influence on the environment. A long-standing argument is that grazing by deer prevents the regeneration of woodland. (Below) deer in Glen Luibeg where grazing has kept vegetation short with no young trees or shrubs





fragility of the environment, should be apprehensive. It is equally understandable that both those wishing to profit from tourism and those anxious to promote further economic growth in an area where prospects for further employment in both farming, forestry and manufacturing are limited, should come to regard conservationists as obstructive perfectionists.

The Spey Valley has long been popular as a place for traditional summer holidays and, despite the emphasis on winter sports, it is still in summer that the majority of visitors come. Nevertheless, it is the growth of winter sports, especially skiing, that has been the distinctive feature of the Cairngorms in the postwar period, especially since 1960, and one that has helped to solve the problem of the short season that is the bane of the tourist trade in Great Britain in general, and in rural Scotland in particular. Skiing was a feature of military training in the area during the Second World War. In the late 1940s, the Scottish Council for Physical Recreation opened a training centre at Glenmore Lodge, the first private ski school came in 1954 and a Strathspey Winter Sport Development Association was founded two years later, on the initiative of the SCPR, the Scottish Youth Hostels Association and local hoteliers.

It was, however, the opening of the road to Coire Cas in 1960 and of the first chairlift in 1961 that marked the real beginning. Major improvements were made to the access road in the late 1960s and a second skiing area was developed at Coire na Ciste in 1973-4. Uplift facilities have been further improved, but at busy times in winter the capacity of the car park may be exceeded and long queues formed at the ski lifts and tows. Such pressure is primarily a feature of weekends, but it is not surprising that it should be seen as an indication of unsatisfied demand. The creation of the chairlifts has not only benefited skiers. The lifts also operate in summer, so that visitors have relatively easy access of the summit of Cairngorm; even the less adventurous can enjoy a panoramic view of Loch Morlich and the Spey Valley from the car park below Coire Cas.

Complementary to the creation of uplift facilities was the development of accommodation, particularly at, or in close proximity to, the Aviemore Centre, which was opened in 1966. Reputedly the dream of the late Lord Fraser of Allander, with encouragement from the Scottish Office, the Centre is unique in Scotland in both its scale and its conception. It now comprises four hotels, together with chalet accommodation and a caravan park, as well as a swimming pool, ice-rink, cinema, restaurants, shops and other facilities in an area where these are either scarce or non-existent. The Centre was, in fact, preceded by the construction of a large new hotel at Coylumbidge and other accommodation has been developed outside it, both in Aviemore and elsewhere; for example, the major expansion of facilities for campers and caravanners in the Forestry Commission's site at Loch Morlich. Indeed, the Aviemore/Cairngorm corridor now provides places for nearly 6000 overnight visitors or nearly half the tourist accommodation in the Spey Valley.

Of course, it is not only the creation of facilities and accommodation that has led to the growth of tourism. Publicity and marketing have also played their part, as have other road improvements and the great expansion of car-ownership. The widespread adoption of shorter working weeks and holidays with pay have also contributed.

So, too, has the general attraction of the Highlands to both British and foreign visitors to the area. Speyside is again unique in that, following an earlier decision to convert the Inverness-Perth railway line to a single track, there is an active programme to re-establish double track working. The *après-ski* facilities, notably those at the Aviemore Centre, not only increase the attractiveness of the area to skiers, but also provide wet-weather facilities for summer visitors. The balance between summer and winter visitors still remains heavily biased in favour of summer; visitors at the July/August peak are many times more numerous than those at the November trough. Numbers rise at Christmas and continue at a higher level (though well below the summer peak) until a secondary peak at Easter, after which there is a steady rise until August. An exceptionally high proportion of the accommodation remains open during winter, though the pattern of use is quite different; in summer, most people are on holiday and numbers remain high during the week, whereas winter visitors, drawn mainly from Scotland, are much higher at weekends.

Reconciling the twin goals of encouraging outdoor recreation and enjoyment of the countryside with the conservation of the scenic features that attract visitors, is everywhere a problem but it is particularly acute in an area of sparse population where both the scenery and the potential for recreation/tourism are major resources and where the local authorities and the Highlands and Islands Development Board are keen to promote developments that will retain population and improve living standards. According to the Report of Survey for the Local Plan, tourism is the most important source of employment and the Written Statement, foreseeing continuing growth, asserts that if tourism is to prosper and develop, some conflict with areas of conservation importance must be accepted as inevitable. The Regional Council is opposed to special designations on grounds of conservation that would prejudice the creation of employment, and its draft Structure Plan asserts that the Council 'will only accept the abandonment of any project that will give major employment opportunities if the Nature Conservancy Council can demonstrate that the development will cause a major ecological imbalance having an irreversible/detrimental effect on man's use of natural resources.' This requirement not only ignores aspects of the NCC's remit but would also be impossible to demonstrate. It is interesting to note in passing that the proposed Grampian Way, which would have passed through the Lairig Ghru, was opposed not only by nature conservationists, but also by recreationists on both safety grounds and because of potential conflicts with existing forms of recreation.

The conflict of interest between conservation and development is clearly shown in the proposal greatly to increase the capacity for skiing by installing ski tows in Lurchers Gully and two other corries to the southwest of the present ski runs, a development that would probably also require an extension of the access road. Nature conservationists, and particularly the Nature Conservancy Council itself, are strongly opposed. Although the area of the proposed development, which is owned by the Highlands and Islands Development Board, is not itself of great ecological interest, they fear not only general adverse effects from increased numbers, but also the possibility that the developments will encourage summer visitors to stray into untouched areas of the National

Nature Reserve. The Highland Regional Council has set up a working party, of which NCC is represented, to review both possible sites for major ski developments in Scotland and the market for skiing. Conservationists are also apprehensive of a complementary proposal, for which outline planning permission has already been given, for a major expansion of accommodation at Dalfaber in Aviemore, which would virtually double the overnight capacity of the village. Other concerns are the recreational use of helicopters and the improvements to the A9, which may encourage more tourists.

A major problem in the Cairngorms, as in other areas of high amenity, high conservation value and high recreation/tourist pressures, is devising strategies that permit the various interests to be properly evaluated and, if possible, reconciled. In theory, the local plan should achieve this end, but many aspects are excluded from planning control and tend to receive only cursory treatment. National interests are also involved. Components of such strategies already exist or are in preparation; apart from the local plan, a management plan is being prepared for the Cairngorm NNR and NCC is also preparing a discussion document, Cairngorm Prospectus. Structures for bringing the different interests together also seem desirable. The national agencies already meet in a Speyside Wildlife Group and the Spey Valley Tourist Association brings together many of the private interests in development. The Regional Council is strongly opposed to any special administrative status for Cairngorm outside the framework of local government.

Patterns of land ownership and designation or proposed designation further complicate matters. The Forestry Commission owns Glenmore Forest Park, now a major recreational development in its own right, particularly around Loch Morlich, where a Water Sports Centre was opened in 1978 and a major information centre is planned later. In 1972, the Forestry Commission assigned the area of present and prospective ski development to the Highlands and Islands Development Board. By contrast, little land is owned by conservation bodies. The Nature Conservancy Council owns only a tenth of the Cairngorm National Nature Reserve, the rest being managed under a Nature Reserve Agreement, which is recognised to be a much less effective control over development and a way of securing the conservation interest. The Countryside Commission for Scotland, the other major conservation body which wishes to designate the Cairngorms as a National Heritage Area, owns no land.

An air of uncertainty hangs over the Cairngorms. The inquiry into the Regional Council's draft Structure Plan has recently been completed, but the outcome is unknown. Discussions are in progress about conservation of National Scenic Areas, the Cairngorm Prospectus is in preparation, the future of the Dalfaber project is uncertain and the Working Party on Skiing has yet to report. Progress on by-passing the Speyside villages on the A9 continues. Underlying all proposals is uncertainty about future trends of tourism in the Highlands, in the light of the check to growth since 1973 and the rapid rise in the price of oil. In the meanwhile, the balance of forces seems weighted against the conservation interest. In the words of Sir Andrew Gilchrist, then Chairman of the Highlands and Islands Development Board: 'You cannot be a Board trying to restore the population, the self-respect and the social progress of an area and spend all the time defending the interests of solan geese.'

Mountains in the making

by David Sugden and Rod Ward

Products of fluvial erosion followed by intense glaciation, the landforms of the Cairngorms are still evolving under one of Britain's most extreme climatic regimes

THE CAIRNGORM SUMMITS form the most extensive area of ground above an altitude of 1100 metres in Britain. They are almost high enough to support glaciers and fail by a margin of only 100 to 200 metres. On the summits air frosts occur on more than half the days in the year, while the mean annual temperature is close to the freezing point. Snowbeds persist throughout the year in a number of cliff recesses and melt only exceptionally. Rainfall and snowfall totals are high and amount to more than 225 centimetres per year. Winds are strong and in 1967 an anemograph on the Coire Cas chairlift recorded the highest gust ever on a standard instrument in Britain, 125 knots.

Conditions have not always been so severe and for several million years before the Ice Age the mountains basked in a humid, warm climate. It was under these conditions that the rolling topography of the Cairngorms evolved. Rivers incised valleys while the granite bedrock decomposed beneath a deep regolith. Remnants of this era are represented in the curious wart-like tors which rise incongruously above the gentle summit slopes to heights of up to twenty-five metres. Good examples can be seen on Beinn Mheadhoin and Ben Avon.

The impact of the Ice Age is most clearly reflected in the spectacular cliffs of the glens and



Rolling hills of the Cairngorms' high tops developed under warmer pre-glacial conditions. Granite bedrock rotted under a deep weathering layer leaving tors which were unaffected by later ice